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DEPARTMENT OF THE ARMY OFFICE OF THE ADJUTANT GENERAL WASHINGTON, D.C. 25310

AGAM-P (M) (2 Oct 67) FOR OT RD-670309

5 October 1967

SUBJECT: Operational Report - Lessons Learned, Headquarters,

45th Engineer Group (Construction)

TO:

SEE DISTRIBUTION

1. Subject report is forwarded for review and evaluation by USACDC in accordance with paragraph 6f, AR 1-19 and by USCONARC in accordance with paragraph 6c and d, AR 1-19. Evaluations and corrective actions should be reported to ACSFOR OT within 90 days of recaipt of covering letter.

2. Information contained in this report is provided to insure appropriate benefits in the future from Lessons Learned during current operations, and may be adapted for use in developing training material.

Tenneth G. Nickham

KENNETH G. WICKHAM Major General, USA

The Adjutant General

BY ORDER OF THE SECRETARY OF THE ARMY:

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DEPARTMENT OF THE ARMY HBADQUARTERS 45TH ENGINEER GROUP (CONSTRUCTION) APO 96238

EGD-3

11 May 1967

SUBJECT: Operational Report-Lessons Learned (RCS CSFOR-65) for Quarterly Period Ending 30 April 1967

THRU:

Commanding General 18th Engineer Brigade ATTN: AVBC-C APO 96377

Commanding General
USA Engineer Command Vietnam (Prov)
ATTN: AVCC-P&O
APO 96491

Commanding General United States Army, Vietnam ATTN: AVHGC-DH APO 96307

Commander in Chief United States Army, Pacific ATTN: GROP-CT APO 96558

TO:

Assistant Chief of Staff for Force Devalopment Department of the Army (ACSFOR DA), Washington, D. C. 20310

Section 1, Significant Organization or Unit Activities.

- 1. During the period 1 February 1967 to 30 April 1967, the following units were attached to the 45th Engineer Group:
 - a. 19th Engineer Bettalion (Combat).

FOR OT RD File

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SUBJECT: Operational Report-Lessons Learned (RCS CSFOR-65) for Quarterly Period Ending 30 April 1967

- b. 35th Engineer Battalion (Combat).
- c. 39th Engineer Battalion (Combat).
- d. 84th Engineer Battalion (Construction).
- e. 577th Engineer Battalion (Construction).
- f. 589th Engineer Battalion (Construction).
- g. 73d Engineer Company (Construction Support).
- h. 513th Engineer Company (Dump Truck).
- i. 523d Engineer Company (Port Construction).
- j. 553d Engineer Company (Float Bridge).
- k. 554th Engineer Company (Float Bridge).
- 1. 572d Engineer Company (Light Equipment).
- m. 2d Platoon, 643d Engineer Company (Pipeline).
- 2. Two new units arrived in country and joined the 45th Engineer Group (Construction) during the reporting period.
- a. The 589th Engineer Battalion (Construction) was attached to the 45th Engineer Group (Construction) on 28 April 1967.
- b. The 523d Engineer Company (Port Construction) joined the 45th Engineer Group (Construction) on 23 February 1967.
- 3. During the period 1 February 1967 to 30 April 1967, the 45th Engineer Group (Construction) was responsible for all non-divisional troop construction and engineer operational support in that portion of Vietnam bounded on the east by the South China Sea, on the north by the I-II Corps Tactical Zone (CTZ) boundary, on the west and south by a straight line from the intersection with the I-II CTZ boundary at BS 4409 to intersection with Route 19 at BR 58054455, thence straight south to intersection with the Phu Yen-Khanh Hoa Province boundary, thence west and southward along the Darlac-Khanh Hoa Province boundary to BP 5180 and then east along grid line 80 to the South China Sea.
- 4. During the entire period, Headquarters, 45th Engineer Group (Construction) remained at Qui Nhon.

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- 5. Operational support during the period centered around the Republic of Korea Army (ROKA) areas at Ninh Hoa, Tuy Hoa and Qui Nhon and United States (US) areas at Tuy Hoa and Bong Son. Construction operations centered around Vung Ro, Tuy Hoa and Qui Nhon.
- a. The 19th Engineer Battalion (Combat) provided operational support to First Field Forces, Vietnam (IFFV) with the complete rehabilitation of Van Canh Airstrip, a C-123, T-17 membrane airfield southwest of Qui Nhon. Additional support was provided to the Capital ROKA Infantry Division, and to the 1st Cavalry Division (Airmebile) as required, primarily providing special equipment and trained operators. Construction effort was continued at the Long My Depot, 2000 Man Cantonment and Aviation Depot at Long My, the Qui Nhon ASP and maintenance of Route QL-1 south of Qui Nhon. The CH-47 facility at Lane Airfield became operational with the completion of 16 M8Al helipads and an M8Al taxiway in March 1967. The battalion supported selfhelp cantonment construction throughout the Phu Tai Valley west and south of Qui Nhon.
- b. The primary effort of the 35th Engineer Battalion (Combat) was to support the 1st Cavalry Division (Airmobile) on Operations Thayer II and Pershing in the northern portion of the II Corps Tactical Zone. Additional major effort was expended on the continued upgrading of Route QL-1 north from Phu Cat Air Force Base to the vicinity of Bong Son to provide a class 31 all weather line of communications prior to the 1967 northeast monsoon. The battalion continued expansion construction at Cha Rang Dopot on Route QL-19 west of Qui Nhon and on 20 March 1967, completed upgrading Route QL-19 to a class 78, fair weather, limited use line of communication west to the An Khe Pass. The 35th Engineer Battalion (Combat) also completed the Qui Nhon An Khe Pipeline in February 1967.
- c. The 39th Engineer Battalion (Combat) supported the 1st Brigade, 4th Infantry Division and the 9th Infantry Division (ROKA) in the southern portion of the sector. Surfacing of the Cung Scn C-123 airfield with T-17 membrane was completed in March 1967. On 9 April 1967, Headquarters, A Company and B Company moved by sea to support Operation Lejuene in the I Corps Tactical Zone to the north. The departing units were placed under operational control of IFFV for the construction of an all weather C-130 airstrip at Duc Pho.
- d. The 84th Engineer Battalion (Construction) provided the primary construction support to the Qui Nhon area. In addition to major self-help prgrams the unit paved with asphalt the south 1000 feet of the Qui Nhon Airfield, and began road rehabilitation, drainage construction and paving of nearly 50 miles of Qui Nhon Area Main Supply Routes (MSR) to be completed prior to the 1967 monsoon season. A class I refrigerated warehouse was completed for Qui Nhon Depot in April 1967.

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- e. The 577th Engineer Battalion (Construction) provided the major construction effort in the Tuy Hoa-Port Lane area. The Delong Pier at Port Lane was completed. The surfacing of roads and hardstands at the port and completion of security lighting finished the project. A CH-L7 facility consisting of 229,177 SF of M6Al helipads and M8Al taxiway was completed at Tuy Hoa. The LOO bed evacuation hospital in the Free World Military Armed Forces (FWNAF) cantonment became operational in April 1967. The parallel 6" and 8" pipelines from Port Lane to Tuy Hoa Scuth Airforce Base were completed in April.
- f. The 589th Engineer Battalien (Construction) was still receiving equipment as of the end of the reporting period. Located on route QL-19 west of Cha Rang, the battalien is planning major effort in the Cha Rang Deptt Expansion Program, route QL-19 rehabilitation and construction of a new CV-7A airstrip at Vinh Thanh. Company B, of the battalien was attached on 29 April 1967 to the 84th Engineer Battalien (Construction).
- g. The 73rd Engineer Company (Construction Support) was attached to the 84th Engineer Battalion (Construction) during the entire period. The company's primary effort is the operation and maintenance of the Phu Tai construction support complex for the production of aggregate and bot mix asphalt to support construction in the Qui Nhon area.
- h. The 513th Engineer Company (Dump Truck) was detached from the 577th Engineer Battalion (Construction) on 18 March 1967, and attached to the 84th Engineer Battalion (Construction). Primary support is to road rehabilitation, construction and paving in the Qui Nhon area. One dump truck section remained attached to the 577th Engineer Battalion (Construction) in Tuy Hoa to support construction in that area.
- i. The 523rd Engineer Company (Port Construction) arrived in Qui Nhon on 23 February 1967 and the unit's equipment arrived on 13 March 1967. The unit is located at the Qui Nhon Port and major construction effort is being placed on a 48 feot wide by 40 foot long bridge on the causeway access road, and on a T-2 POL Jetty in the harbor. The company is also constructing a bulkhead for the electrical power transformer station being built by contract for Qui Nhon area power.
- j. The 553rd Engineer Company (Flort Bridge) was attached to the 39th Engineer Battalion (Combat) until 9 April 1967, when it was attached to the 577th Engineer Battalion (Construction). The unit continued maintenance of an 800 foot float/trestle bridge south of

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Tuy Hoa, and constructed and operated a 6 float reinforced MuT6 ferry across the 1100 foot wide Song Cai River north of Tuy Hoa in April. Additional support was provided to fixed bridge construction and to construction materials hauling throughout the Tuy Hoa area. The unit also constructed a 215 foot MuT6 float bridge over the Song Lai Giang in April.

- k. The 554th Engineer Corpany (Float Bridge) remained attached to the 19th Engineer Battalion (Combat) until 9 April 1967, when the unit, except for one float bridge platoon, was attached to the 39th Engineer Battalion to support Operation Lejcune. The unit provided general bridging and transportation support throughout the northern portion of the 45th Engineer Group (Construction) area of engineer responsibility.
- 1. The 572nd Engineer Company (Light Equipment) was attached to the 39th Engineer Battalion (Combat) until 9 April 1967, and then was attached to the 577th Engineer Battalion (Construction). The Quarry Section was OPCON to the 577th Engineer Battalion (Construction) throughout the entire period. The unit provided general support to construction in the entire group sector. One plateen was attached to the 19th Engineer Battalion (Combat) in late March and is located at the Long My Depot area in Qui Nhon, Republic of Vietnam.
- m. The 2nd Plateon of the 6h3rd Engineer Company (Port Construction) was detached from the 577th Engineer Battalion (Construction) on 10 April 1967, upon completion of the Vung Ro-Tuy Hoa pipeline system. The plateon was attached to the 8hth Engineer Battalion (Construction) in Qui Nhon and is engaged in construction of a 6" pipeline from Qui Nhon to Phu Cat Air Force Base north on route QL-1 (and of a second 8" pipeline from the Qui Nhon port to Tank Farm Number three south and east of Qui Nhon.)
- 6. During the entire reporting period, the 15th Engineer Group (Construction) was fully operational and provided support to FWMAF in its area of engineer responsibility.

Section 2, Part I, Observations (Lessons Learned).

Training and Organization

ITEM: Engineer compaction and specialized construction equipment.

EISCUSSION: There have been numerous instances where shortages of certain specialized items of equipment hindered construction. All battalions are now engaged in road, airfield or depot expansion projects where compaction equipment is an absolute necessity. The combat battalions do not have the required compaction equipment to carry on earthmoving construction projects. The most critical shortages are 35 ton

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compactors, sheepsfoot rellers, wobbly-wheel rollers, 10 ton steel-wheel rollers, asphalt finishing rollers and water distributors.

OBSERVATION: Additional equipment should be available for class IV issue for use on particular projects. This equipment pool should include compaction equipment, paving equipment or other equipment which is required above that which is authorized by TOE,

Operations

ITEM: Asphalt paving operations.

DISCUSSION: Paving of the LOC was difficult due to the heavy volume of traffic using the road. Normal priming with MC-O was accomplished at night so as to have the normal 12 hour curing period. Heavy traffic using the road at night tore up many areas of primed road dausing a poor tack coat. Heavier coats were applied but resulted in bleeding or pooling in some areas.

OBSERVATION: It was discovered that by priming just before dawn, when the traffic was at its lowest, the earlymorning sun caused curing at a faster rate. Also better traffic control could be established in the daylight. Paving operations started later each day, but paving was done on a better primed surface resulting in a higher quality bond, and better read pavement.

TTEM: Concrete bridge abutments.

DISCUSSION: Many concrete bridge abutments built by the French have failed structurally. This can be attributed to overloading from vehicular traffic and exposure to saturated soil conditions behind backwalls and wingwalls.

OBSERVATION: Reduction of saturated soil conditions can be made by standard US methods. When tackfilling behind an abutment wall, utilize a sand backfill. This promotes better drainage behind the backwalls and wingwalls. Also a more uniform design calculation by equivalent fluid pressure can be adhered to with this select fill, approximately 35 to 38 pounds per SQ foot. The surface of the backwalls and wingwalls should be coated with a cut back asphalt to prevent exposure of the concrete to moisture. Sand fill should be used behind timber headwalls.

ITEM: Bridge treadway.

DISCUSSION: The 45th Engineer Group has been involved in extensive timber decked building on QL-1 north of Qui Nhon. Daily convoys of up to 80 trucks travel the route in addition to non scheduled troop movements and civilian traffic. Severe damage and wear has occurred to

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bridge decking which has the military standard 4 tread, 3" x 48" treadway.

OBSERVATION: Decking can be protected by utilizing 3" x 12" treadway on 13" C-C spacing and 18" untreaded in the center to separate lanes. This method requires 5hBF of 3" x 12" x RL timber per foot of 2h' wide bridge. In addition to protection, the design retains the self cleaning and drying characteristics of the 4 tread standard, which are not available in a solid tread design.

ITEM: Traffic control.

DISCUSSION: During the paving of Rte QL-1 south of Qui Nhon, it was necessary to pave only one lane each day in order to maintain the flow of traffic. Control of traffic became a problem due to the many compounds having access to highway QL-1. It was found that vehicles were rounding off the center section of the asphalt strip making the cold joint difficult to seal during the application of the next strip. The end joints were also being broken and depressed, fuel holes damaged the fresh asphalt surface due to fuel trucks waiting in line for passage of traffic.

OBSERVATION: It was found that by moving the traffic control points further away from the paving operation traffic would be passing over asphalt that had two days to cure. This resulted in less fuel hole damage. The asphalt cured enough in two days to preclude damage by fuel leakage. Edges of cold joints were heavily primed immediately in front of the paver causing a better joint bond to result. In order to maintain a better end joint, burlap was placed over the end of the joint and a 2" x h stop was installed. Then loose asphalt was placed over this burlap, forming a ramp. This ramp was removed the next morning with the end joint still in good condition. Traffic control was performed by use of radios at each end of the paving site because of the length of the controlled traffic area.

Communications

ITEM: Dust problems.

DISCUSSION: Many problems in radios have been caused by the prevelent dust conditions in Vietnam. The normal dust filter of transmitter T-195/GRC-19 must be cleaned daily. The normal filter must be cleaned in oil, a tedious and dirty task.

OBSERVATION: A special filter is available for use with transmitter T-195/GRC-19. It is dust filter, MX-3492, FSN 4130-606-5763, reference SB 11-524, dated 21 September 1961 and TM 11-5820-335-10, dated 21 October 1961. This filter is much easier to clean than the normal T-195 filter and provides much better protect on from dust.

ITEM: Wire communications.

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DISCUSSION: The 35th Engineer Battalion (Combat) had to lay 10 miles of wire to establish telephone communications with 45th Engineer Group (Construction). Wire was cut daily by Vietnamese and was also damaged by other friendly forces.

OBSERVATION: Overheading the wire, briefing operators of earthmoving equipment as to the presence of wire in construction areas, and requesting the assistance of the local Province Chief to explain the importance of the circuit to the local populace, decreased damage to the circuit. The real problem was found to be the fact that local Vietnamese were using WD-1 for clothes lines. Replacing WD-1 with spiral 4 cable, exied this problem altogether.

Logistics

ITEM: Caterpillar Model 12 Grader.

DISCUSSION: Units in this Command are experiencing difficulty with the tandem wheels of the Caterpillar Model 12 Grader, FSN 3805-197-4184. It appears that, as the equipment is operated, the nut, plain, cap, wheel hub retaining, FSN 5310-220-6748, toosens, allowing the key, machine, rear wheel to spindle, to move and distort the shpae of the key-way on both the spirdle and the hub.

OBSERVATION: Fabricate a wrench of such a size that it fits the nut, FSN 3805-197-4184. This should be included as part of OVM for the grader, and operators should be instructed to make tightening this nut part of their motorstables and during operational maintenance. If a spindle-hub combination is made unservicable due to this movement, a new hub and spindle must be ordered. As a temporary fix until these items come in, the hub should be welded to the spindle securely.

Other

ITEM: Suspended leads for driving pile.

DISCUSSION: Timber pile can be driven on land very effectively by the use of suspended leads with the diese, hammer. Suspended leads can also be used to drive batter pile. The bottom of the leads must be held firmly in place to prevent shifting of the leads while driving. This can be done by welding angle iron extensions approximately two feet long on the bottom of leads. The heaviest set of leads available should be used for this purpose in order to maintain adequate sate l. Skidmounted pile driver leads work very well for the spended leads. The advantage of using suspended leads include the fassembly and increased flexibility during driving operations. I pended leads cannot be used over water.

OBSERVATION: Suspended leads for pile driving should be used when ever possible.

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Period Ending 30 April 1967

ITEM: Use of a 27 foot dge Erection Boar as a sea going vessel.

DISCUSSION: The seas are extremely hard on the aluminum hull of this vessel. The primary problem encountered in using this best in open seas has been the loss of rivets out of the front push arms due to excess bouncing of the boat.

OBSERVATION: A 27 foot bridge erection boat should not be used in the open seas.

ITEM: Working with creosote treated lumber and timber piles.

DISCUSSION: Experience has proven that when working with creosote treated timber piles and lumber, painful burns are a hazard especially on hot, still days. The creosote vapor remians in the air and irritates skin and eyes. The burns are damaging to the morale and efficiency of the men.

OBSERVATION: All troops should be warned of the hazards of working around creosote before beginning work and encouraged to wear long sleeves shirts and gloves. If the situation permits, the workers should be rotated periodically to avoid prolonged contact with the creosoto.

ITEM: Tomplate for Driving Sheet Pile.

DISCUSSION: An adequate template should be constructed prior to driving operations. The template can be constructed of sheet pile on H-Pile. Experience has proven it is preferable to have a template at the top and bottom of the sheet pile wall. Two templates facilitiate better control during driving operations and results in a straighter sheet pile wall.

OBSERVATION: Two templates should be used during pile driving operations when the situation permits.

Section 2, Part II, Recommendations. NONE.

CEORGE M. BUSH

Colonel, Corps of Engineers

Commanding

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AVEC-C (11 May 67) lst Ind Cpt Mills/cky/DBT-163 SUBJECT: Operational Report - Lessons Learned (RCS CSFOR-65) for Quarterly Period Ending 30 April 1967.

Headquarters, 18th Engineer Brigade, APO US Forces 96377

7 JUN 15-1

TO: Commanding General, U.S. Army Engineer Command, Vietnam (Prov) ATTN: AVCC-P&O, APO US Forces 96491

- 1. This Headquarters has reviewed the quarterly report submitted by the 45th Engineer Group (Construction), and considers that it adequatly covers the Group activities during the period ending 30 April 1967.
- 2. Concur with the comments and observations of the Group Commander, with the following comments added:
- a. Page 7, Communications, Item: Dust Problems This spacial filter is particularly recommended for use with the AN/CEC-19 radio when operated in a mobile or semi-fixed configuration and dust cannot be appreciably arrested by other means. This filter will also clog, depending on the concentration of dust in the operating area and must be cleaned daily or transmitter over heating will result.
- b. Page 8, Legistics, Item: Caterpiller Model 12 Grader Temporary welding of hub will increase repair time when the item is replaced, so should not be considered except as a field expedient. Operators and mechanics should include the tightening of these nuts as a portion of normal preventive maintenance services. The inclusion of a suitable wrench in OVE is a solution, but the use of unit contact maintenance teams is also a recommended solution. Tools to perform this job are available in the 2nd and 3rd echelon tool sets.

C.M. DUKE

Brigadier General, USA

Commanding

AVCC-P&O (11 May 67) 2d Ind CPT Hubbard/ccb/EH 404 SUBJECT: Operational Report-Lessons Learned (RCS CSFOR-65) for Quarterly Period Ending 30 April 1967

HEADQUARTERS, UNITED STATES ARMY ENGINEER COMMAND VIETNAM (PROV), APO 96491 $_{1.4}\,$ Jun 1967

TO: Commanding General, United States Army, Vietnam, ATTN: AVHGC-DH, APO 96307

- 1. The subject report, submitted by the 1.5th Engineer Group (Const), has been reviewed by this headquarters and is considered adequate.
- 2. The comments made by the submitting and Indorsing commanders have been reviewed and this headquarters concurs, subject to the following added comment:

Section 2, Part I, pages 5 and 6, ITEM: Engineer Compaction and Specialized Construction Equipment. Augmentation of some specialized construction equipment is being, and will be acquired by U. S. Engineer units as contractor assets are distributed among troop units.

FOR THE COMMANDER:

RICHARD J DUCOTE Colonel, CE

Chief of Staff

AVHGC-DST (11 May 67)

SUBJECT: Operational Report-Lessons Learned for the Period anding 30 April 1967 (RCS CSFOR-65) (U)

HEAD JUARTERS, UNITED STATES ARMY VIETNAM, APO San Francisco 96307 8 JUL 1967

TO: Commander in Chief, United States Army, Pacific, ATTN: GPOP-OT APO 96558

1. This headquarts is has reviewed the Operational Report-Lessons Learned for the period ding 30 April 1967 from Headquarters, 45th engineer Group as indorsed.

2. Pertinent comments follow:

- a. Reference item concerning shortages of certain specialized equipment, pages 5 and 6: Concur. Corrective action proposed in 2d LNG-Indorsement is considered adequate. Additionally, combat engineer battalions are augmented with compaction equipment from the Light Equipment Company organic to the group.
- b. Reference item concerning the tandem wheels of the Cater-pillar Model 12 Grader, page 8: Concur. Unit will be instructed to submit an EIR. Recommend this observation be brought to the attention of the National Maintenance Point.

Asst Adjutant Ceneral

FOR THE COMMANDER:

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(.)

GPOP-DT (11 May 67)

SUBJECT: Operational Report for the Quarterly Period Ending O April 1967

from HQ, Li5th Engineer Group (RCS CSFOR-65)

HQ, US ARMY, PACIFIC, APO San Francisco 96558 2 1 SEP 1967

TO: Assistant Chief of Staff for Force Development, Department of the Army, Washington, D. C. 20310

This headquarters has evaluated subject report and forwarding indorsements and concurs in the report as indorsed.

FOR THE COMMANDER IN CHIEF:

G. I. McMULLIN MAJ, AGC Asst Ag